Region 2 Enforcement & Compliance Assurance Division
Air Compliance Branch

Inspection Report

Inspection Date(s):	January 10, 2023
Facility Name:	Bird Island Sewage Treatment Plant
Facility Address:	90 W FERRY ST, BUFFALO, NY 14213-7999
ICIS-Air/RMP ID #:	NY0000009140200154
Federal Facility:	No
NCI:	HAP
Facility size:	Major
Planned Activity:	FCE
State Referral:	No
NAICS code:	221310 Water Treatment Plant
EPA Lead Inspector:	Phil Ritz 212-637-4064
EPA Asst. Inspector:	Joseph Cardile212637-4054
	Steve Rapp, ERG Inspector, 339-364-4264
State Inspectors:	Marcia Ladiana, NY State Department of Environmental Conservation ("NYSDEC") Ethan Bennett, NYSDEC
Facility Contact:	Alexander Emmerson, (716) 854-4664

Information Sources Consulted:

- ☐ ICIS-Air (Integrated Compliance Information System)
- ☒ ECHO (Enforcement and Compliance History Online)
- ☐ TRI (Toxic Release Inventory)
- ☒ CEDRI
- ☐ Dun & Bradstreet
- ☐ Envirofacts
- ☒ State Contact
- ☒ State Website/Database
- ☒ File Review
- ☒ Google/Bing/Aerial Photographs/Maps/Diagrams
- ☐ Facility Website
- ☒ Previous Inspection Reports
- ☐ Information Collection Request
- ☒ Other

Facility Information

1. Plant Description:

The Buffalo Sewer Authority (“BSA”) owns and operates Bird Island Sewage Treatment Plant (“STP” or “the facility”) that discharges into the international boundary water of the Niagara River. The facility services the Buffalo area and adjoining suburbs through a combined collection system of over 844 miles of trunk and lateral sewer lines. The BSA treats approximately 60 billion gallons of wastewater annually at the Bird Island STP. Primary treatment facilities were placed into service in 1938. Full secondary treatment facilities were added and placed into service in 1981. The plant was designed around an average flow of 180 million gallon per day (“MGD”) with a peak flow of 563 MGD and a peak secondary flow of 360 MGD.

Sludge processing at Bird Island STP includes dissolved air flotation thickeners, sludge digestion, sludge mixing tanks, centrifuges for sludge dewatering, and sewage sludge incineration. The BSA also receives undigested sewage sludge from Wastewater Treatment Plants (“WWTPs”) operated by the Towns of Amherst and Tonawanda for disposal through incineration at Bird Island STP. Incinerator ash is disposed by landfilling. The facility is also capable of landfilling the dewatered sludge in lieu of incineration, if necessary.

Emission Unit U-00002 is the Main Stack and the Main Equipment Building (“MEB”). The Main Stack exhausts contaminants to the ambient air from several emission sources (ES) located in the MEB. EU U-00002 contains three multiple hearth sewage sludge incinerators (SSIs or MHIs), identified as ES0000D (“INC1”), ES 0000E (“INC2”) and ES 0000F (“INC3”); three auxiliary steam generating boilers, identified as ES 00001 (“Boiler 1”), ES 00005 (“Boiler 2”) and ES 00009 (“Boiler 3”); and the ash conveyance system, identified as ES ASHHO. EP INC1, EP INC2, EP INC3 and EP ASHHA are not actual emission points, but are the ducts that lead to the Main Stack from each associated emission source.

The contaminants regulated under 40 C.F.R. Part 60, Subpart MMMM, "Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units” (“Subpart MMMM”) are cadmium (“Cd”), lead (“Pb”), mercury (“Hg”), sulfur dioxide (“SO2”), oxides of nitrogen (“NOx”), carbon monoxide (“CO”), dioxan/furans (“d/f”), hydrogen chloride (“HCl”) and particulates (“PM”). Emissions from the incinerators are controlled by afterburners and wet scrubbers. INC 1 is currently out of service because it cannot comply with Subpart MMMM as currently configured but according to BSA, may be rehabilitated in the future.

Each furnace is a separate and complete unit with an afterburner, flue gas scrubbers, ash handling and associated equipment. The maximum capacity of each incinerator is determined by the feed rate of centrifuged sewage sludge during a performance test.

Boiler 1, Boiler 2, and Boiler 3 exhaust directly to the atmosphere through EP 000CA, EP 000CB and EP 000CC. The three boilers are equipped with low NOx burners and supply building heat, hot water, and heated circulating water for the digesters. Each boiler has a rated heat input of 51.4 million British thermal units per hour ("MMBtu/hr.") and is capable of firing natural gas or digester biogas.

Emission Unit U-00003 contains six anaerobic digesters, identified as Process SDI and ES SDIII, which generate biogas from waste sewage sludge. The biogas is stored in a sphere until it is used to fuel the auxiliary boilers and provide supplemental fuel to the incinerators, when needed. Natural gas is available as a backup fuel for the incinerators and boilers if biogas is not available. Two waste gas burners, used to dispose of excess sludge digester gas (biogas) when necessary, are identified as ES FLAR3 and FLAR4. The emission points associated with the flares are EP 00SD3 and EP 00SD4, respectively. The sludge digester system stores biogas in a 43.5-foot diameter sphere (43,099 cubic feet), with a working pressure of 55 pounds per square inch ("psi").

The facility has an ash handling system for the incinerators, which includes the ash conveyance system and the ash load-out system. The bottom outlet from each incinerator is equipped with a clinker roller crusher. Crushed incinerator clinkers and ash are dropped into ash hoppers located beneath the base of each incinerator. The bottom of each hopper is connected to an 8-inch induction ash vacuum line, which pneumatically conveys the ash up 108 feet to the top of either Silo-1 or Silo-2. The ash is then separated from the air through cyclonic action after passing through a primary receiver and secondary receiver, then dumped into the silo for interim storage. Air that is displaced while filling the silo passes through a baghouse prior to discharging to the ambient air. To control particulate emissions prior to exhausting to the Main Stack, the air stream that exits the secondary receiver passes through a venturi air washer and wash tank, identified as VAW-1 and W-1, at ground level. The ash loadout system removes ash by gravity from the silo into the rear of a 40-yard dump truck. To prevent dust formation as ash is transferred from the silo to the dump truck, water is added and mixed into the ash prior to load-out. There is one independent ash load-out system for each silo.

BSA also operates emission sources at Bird Island STP, including:

- four small combustion installations (maximum heat input < 10 MMBTU/hr.),
- two gasoline dispensing sites (annual throughput < 120,000 gal/year),
- two storage silos (each equipped with a baghouse for particulate control),
- four laboratory exhausts, and
- three solvent transfer/filling/sampling/storage room exhausts.

2. Compliance History:

Based on a review of EPA's Enforcement and Compliance History Online ("ECHO") website, it appears that NYSDEC has conducted eight on-site partial compliance evaluations ("PCEs"), including observing three stack tests, at the facility since January 2018. According to ECHO, there do not appear to be any formal or informal Clean Air Act (CAA) enforcement actions taken by EPA at the facility over the past five years.

Compliance Monitoring History Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	09/30/2022
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE On-Site	State	09/21/2022
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Stack Test	State	05/25/2022
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Off-Site	State	07/30/2021
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Stack Test	State	05/11/2021
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Off-Site	State	01/29/2021
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Title V CCR	State	01/29/2021
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	FCE Off-Site	State	09/28/2020
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE On-Site Record/Report Review	State	09/24/2020
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	FCE On-Site	State	09/28/2018
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE On-Site	State	09/20/2018
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Stack Test	State	09/18/2018
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Off-Site	State	08/02/2018
CAA	NY0000009140200154	ICIS-Air	Inspection/Evaluation	PCE Title V CCR	State	01/31/2018

Inspection Summary

A. Entry and Opening Conference

1. Entry

The representatives from the U.S. Environmental Protection Agency ("EPA"), Josph Cardile,Phil Ritz, and Steve Rapp from Eastern Research Group ("ERG"), arrived at the Bird Island Sewage Treatment Plant at approximately 9:00 am. Shortly after, the representatives from the New York State Department of Environmental Conservation ("NYSDEC"), Marcia Ladiana and Ethan Bennett, arrived. The NYSDEC and EPA representatives ("the inspectors") were met at the administration building by Alexander Emmerson, Treatment Plant Superintendent, BSA, and Roberta Gaiek, Treatment Plant Administrator, BSA, ("the facility representatives"). The inspectors and facility representatives proceeded to a meeting room for the opening conference. The inspectors presented their identification credentials and provided an overview and scope of the inspection, noting a particular focus on the requirements of Subpart MMMM.

2. Background

The facility representatives provided general background and history of the Bird Island facility. The sewage sludge incinerators (SSIs) units were built during the period 1978 – 1980 and began operation in 1980. BSA only runs one unit at a time. They explained that BSA has approximately 230 employees with approximately 150 for operation and maintenance, as well as several trained incinerator operators, including a chief operator, an assistant operator, and nine boiler engineers. Mr. Emmerson related some of the challenges with staffing but noted that during the blizzard a few weeks ago, BSA's operators demonstrated exceptional dedication, commitment, and capability.

Regarding the sludge incineration process, the facility representatives explained that the facility uses centrifuges to process the biosolids (sludge) from 3 – 4% to approximately 25% solids which are conveyed to the facility's two active SSIs", INC2 and INC3. They explained that BSA changed the solids handling process in 2007 by replacing belt presses with centrifuges. Moisture content of the sludge is checked daily by composite sampling twice per shift for determining percent solids. BSA's goal is 25% solids. The liquid centrate from the centrifuges is monitored and adjustments are made to the amount of polymer added to the wet sludge and the speed of the centrifuges. They explained that the facility processes biosolids from the town of Amherst, NY, which comprises approximately one-fifth to one-sixth of the overall material incinerated per year. They noted that the biosolids from Amherst have a solids content of 25 – 29% solids which can cause technical challenges because of the higher heat content. BSA has considered several options for processing the Amherst sludge, including rewetting, mixing, and processing it with the sludge from the facility but currently conveys it to the SSIs directly as it is delivered. They explained that the ash from INC2 and INC3 is conveyed by pipe to ash silos and then to trucks which transport the material to a landfill, approximately five days per week.

Mr. Emmerson described the biogas processing at the facility. He noted that five of the digesters were currently online and the sixth was being serviced. He noted that by using the biogas at the facility, BSA saved a significant amount of money relative to its natural gas purchases in the past. BSA has also studied selling the gas as "renewable natural gas." They have also looked at generating electrical power with the biogas. BSA has studied other possible changes to the facility, including rehabilitating INC1 to allow the facility to accept and process additional biosolids. They are looking at the regional management of biosolids and considering what role the additional capacity could play.

3. Technical Discussion

The EPA inspectors asked a series of questions related to the sewage sludge incineration processes at the facility. The following are key points from the discussion.

Sludge Incineration Process

Mr. Emmerson described the operation of the multi-hearth incinerators ("MHIs") as follows. The MHIs have 12 hearths. Hearths 1 and 2 are the "afterburner" section and operate typically at 1200 – 1250 degrees Fahrenheit ("F"). Hearth 3 is used for drying the sludge. Hearths 4, 5, 6, and 7 are where the sludge is combusted at 1400 – 1500 F. Hearth 8 begins the cooling process of the ash. Hearths 9, 10, 11, and 12 are where the ash further cools. Residence time is between 90 and 180 minutes. The ash is then transferred by pipe under vacuum to the ash silos.

According to Mr. Emmerson, the SSIs have a design capacity of 60 dry tons per day ("dtpd") and 2 – 6 dry tons per hour ("dtph") is typical. Emissions testing has been done at higher and lower feed rates. Wet weight has been lower because it was what was available out of the centrifuges. The capacity depends on the solids content leaving the centrifuges. Several of the test reports reviewed by the inspectors describe different capacities for the units. The inspectors noted that recent test reports indicate that the capacity of INC2 is 55.3 dtpd and INC3 is 49.3 dtpd. During testing, BSA tries to have a representative mix of BSA and Amherst biosolids. Mr. Emmerson explained that BSA mixes collected fats, oils, and greases ("FOG") to the sludge digesters prior to the liquid reduction in the centrifuges.

Mr. Emmerson explained that, based on emissions testing in 2014, INC1 could not meet all the emission limits in Subpart MMMM. The inspectors noted changes made to SSIs can trigger additional regulatory requirements, including "reconstruction" under Section 129 of the Clean Air Act ("CAA") and "modification" under New York's New Source Review ("NSR") permitting regulations. They noted that the reconstruction applicability test in Section 129 of the CAA is different than other regulations insofar as it is based on the cumulative costs of work done at the facility, excluding things like air pollution control, since the construction of the unit.

Air Pollution Control System

Mr. Emmerson described the air pollution control systems used for INC2 and INC3 as follows. Flue gas exhaust from the incinerators goes to an "EnviroCare" scrubber unit that includes several stages or types of scrubbing units in the same housing, including a quench, venturi scrubber, a tray scrubber, and a mist eliminator. He said that the current unit does not include pH adjustment by chemicals, e.g., sodium hydroxide, but rather uses treated effluent from the

water treatment section of the facility. There are different liquid flows in each of the stages of the scrubber. The exhaust gases exit the scrubber unit and the facility through a smokestack.

Air Pollution Control Bypass

Mr. Emmerson explained that in the duct work exiting the SSIs, there is a damper that opens to allow exhaust gas to bypass the air pollution control equipment when certain conditions are noted by the SCADA control system. For example, he related that if the induction ("id") fan that pulls the exhaust gas through the pollution control system stops, e.g., due to a power failure, the SCADA signals the bypass damper to open. The incineration process is not interlocked with the bypass damper and an operator must manually commence stoppage of the incineration process through a sequence of steps. He provided the inspectors with a root cause analysis of recent bypass events noting that some of the instances of bypass were recorded in the SCADA as continuing for extended periods of time but upon further investigation, it appears that the dampers may have closed but the SCADA system did not change from an "open" to "closed" condition although the damper was physically closed based on other operational indicators. The inspectors emphasized that BSA needs to develop a standard operating procedure ("SOP") for how such bypass events will be minimized as well as steps to be taken to check the damper position when the SCADA indicates it is open, such as a visual inspection through the access hatch. They noted that such an SOP could be included in the site-specific monitoring plan ("SSMP") given that it is a form of monitoring occurring at the facility.

Control and Site-Specific Monitoring Plans

The inspectors asked if BSA had a final control plan ("FCP") that described how each of the nine pollutants regulated by Subpart MMMM is controlled and which is required to be submitted and approved by the regulations (6CRR-NY219-9.3 and Subpart MMMM, section 60.5110). Mr. Emmerson was not familiar with the FCP but noted that it may have been developed by his predecessor. The inspectors explained that the FCP is needed for developing an approvable SSMP under Subpart MMMM (section 60.5200). Further, they noted that for mercury ("Hg") dioxins/furans ("d/f"), and nitrogen oxides ("NOx"), section 60.5175 of Subpart MMMM requires a petition to EPA if an air pollution control device other than a wet scrubber, fabric filter, electrostatic precipitator, activated carbon injection, or afterburner is used, or if an SSI limits emissions in some other manner (e.g., materials balance) to comply with the emission limits in section 60.5165 and Table 3. Further, an approved petition is necessary prior to developing a SSMP that must be submitted and approved by EPA under section 60.5200 of Subpart MMMM. The inspectors noted that it appears that BSA had not yet submitted such a petition to EPA. Further, based on review of reports submitted to NYSDEC since 2016 by BSA concerning the SSIs, it appears that the facility has not set operating parameter limits for NOx, Hg, and d/f during the stack tests as required by section 60.5190, or complied with the continuous compliance requirements of section 60.5210.

Regarding Hg, the inspectors explained that several other MHIs in the northeast have developed, and EPA has approved, Hg monitoring petitions that include periodic comparison of the metals analysis of sludge to a maximum theoretical emission concentration ("MTEC") of Hg calculated using the Subpart MMMM emission limit and the stack gas flow rate for the specific SSI. They noted that MTEC is described at 40 C.F.R. Part 63, section 63.1201 and 40 C.F.R. Part 63, Subpart EEE, "National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors" and noted that SSIs already sample sludge for Hg under 40 C.F.R. Part 503, Subpart E. Additionally, the approved petitions describe steps that the SSI owner will take when the MTEC is exceeded, e.g., increased sampling and analysis, outreach to significant industrial users, and other types of upstream reduction programs. Ms. Ladiana raised NYSDEC's concerns with Hg and arsenic ("As") levels based on NY regulatory limits. The inspectors noted that some of the same steps might be help with compliance with the State limits as well.

The inspectors explained that Subpart MMMM (section 60.5190(b) and (c)) require SSIs to monitor pressure drop and flow for "each wet scrubber" where the stages are controlling different pollutants. They noted that the current SSMP only discusses monitoring liquid flow and pressure drop across the "EnviroCare" unit. Therefore, it appears that the SSMP is not currently complete regarding the scrubbers.

Ash Handling

Mr. Emmerson described the ash handling at the facility noting that the system was changed to a system that wets the ash and moves it in closed pipes. The inspectors noted that Subpart MMMM requires operators to develop and submit for approval an ash handling fugitive monitoring plan. Although the current SSMP references an ash handling SOP, the SOP does not include the steps the facility takes to monitor for fugitive emissions at the truck loading bay area. They noted that other SSIs incorporate log sheets or checklists used by personnel during their daily facility monitoring. Mr. Emmerson noted that BSA uses an on-line checklist that could be included.

Systems Controls and "Ovation" SCADA Data

At approximately 12:00 pm, Mr. Emmerson led the inspectors to an office where operators could access BSA's Supervisory Control and Data Acquisition ("SCADA") system, called "Ovation." He showed examples of numerous screens that operators use to control operations, including but not limited to sludge feed rates, incinerator hearth temperatures, scrubber pressures and flow, pH of scrubber water, ash storage levels, feed rates to and from the digesters, gas pressures in the biogas system, and water temperatures to and from the heat exchanger with the biogas system, but not the boiler parameters themselves. See Attachment 3, photos 1 – 8, 9278, 9279, 9285, and 9286.

Temperature

The SSIs were not running at the time but Mr. Emmerson noted that there are two thermocouples located in each hearth and showed the inspectors a number of example screens from prior operation of the units. The inspectors noted that the readings in Hearth 6 were more than 200 F apart and asked about BSA's quality assurance/quality control ("QA/QC") procedures on the devices. Mr. Emmerson explained that the devices are checked annually which is part of the facility's maintenance system planning and tracking for which they use a tool called "Maximo." He explained that if the two readings in a hearth were different, it could be a function of which fuel burners were ignited at the time or it could mean that a thermocouple needed replacement.

Oxygen and Total Hydrocarbon

Regarding the continuous monitoring systems measuring oxygen ("O2") and total hydrocarbon ("THC"), Mr. Emmerson explained that currently, that data can be seen in a separate system for continuous emission monitoring ("CEMS") but not within the SCADA system. However, BSA is currently working to integrate those into the SCADA. The inspectors noted BSA has reported numerous deviations of O2 levels required by 40 C.F.R. Part 60, Subpart O, in the facility's semi-annual and annual reports. They noted that due to the current disconnect between operator systems, it appears that the necessary changes may not be occurring in a timely manner when the THC or O2 monitor indicate a problem with the incineration.

Feed Rate

The inspectors noted that the SCADA data showed the sludge feed rates to the incinerators varied between 2 and 12 dtph on some days which raises questions about the appropriate feed rate to use during emissions testing and the current use of a daily average for setting a maximum. They noted that this is important because it relates to the requirement in Subpart MMMM (section 60.5220) to run the units at or above 85% of the maximum capacity during initial and annual stack testing. Also, they noted that Subpart MMMM (section 60.5170) requires SSIs to monitor the feed rate and moisture content of the sewage sludge fed to the SSI and calculate a daily average for all hours of operation during each 24-hour period. However, for setting control device operating parameter limits, Subpart MMMM (section 60.5190) relies on a four-hour average of parameters measured during the most recent performance test demonstrating compliance. Therefore, it is important to look at shorter than 24-hour averages in determining maximum capacity prior to the next round of annual testing.

pH Data

The inspectors noted that the deviation and annual reports from 2019 – 2021, indicate that the facility has frequent deviations from the parameter limits for pH as set in the annual stack tests. In 2019, 2020, and 2021, BSA reported the pH of one or both of the scrubbers as exceeding the parameter limit more than 30% of the operating time and that for the semi-annual period between January and June of 2020, BSA reported pH deviations more than 60% of the operating time. The inspectors said that such high rates of reported deviation appear to indicate a problem with the acid gas control system or the stack testing operating conditions, or a combination of factors. They noted that although the facility may demonstrate compliance with the emission limits for sulfur dioxide ("SO2") and hydrogen chloride ("HCl") during the stack tests, the scrubbers do not appear to be maintaining the pH of the test conditions and therefore, the facility is not demonstrating continuous compliance with those limits as required by Subpart MMMM (section 60.5210). The inspectors noted that similar facilities in the Northeast have used SO2 continuous emissions monitoring systems ("CEMS") to monitor SO2 emissions over the course of 3 - 6 months to determine the causes of similar parameter limit violations. However, similar facilities were unable to use a CEMS for HCl due to technical issues. Rather, it was possible to conduct additional HCl test runs at the time of their annual emissions test, e.g., under different feed rates and scrubber liquid flow rates and pressures. Some SSIs discovered that their scrubbers were not capable of maintaining continuous compliance without adding pH adjusting chemicals to the scrubber liquid going to the tray or venturi scrubbers. Mr. Emmerson explained that BSA is currently working with a consultant, GHD, to review the situation, including the possible temporary installation of a SO2 CEMS.

The group took a break for lunch at approximately 1:40 pm.

The inspectors and Mr. Emmerson returned to the conference room at approximately 2:40 pm. At that time, BSA started up INC3.

Emissions Testing

Based on a review of BSA's test reports, the inspectors noted several concerns with the emissions testing, including tests conducted at less than 85% of the maximum capacity as required by Subpart MMMM (section 60.5220(a)(11)). If the feed rate was not at 85% of the maximum permitted capacity, then the parameter limits would only be valid for up to 115% of the feed rate of the testing. They noted a concern with BSA's use of one-hour runs for SO2, HCl, and NOx and noted that while Table 3 of Subpart MMMM lays out minimum sampling volumes that may be filled in one hour, the regulations (section 60.5190(c)) states that SSIs are required to set a parameter limit for minimum scrubber liquid flowrate (measured at the inlet to each wet scrubber), equal to the lowest 4-hour average liquid flow rate measured during the most recent

performance test demonstrating compliance with all applicable emission limits. It appears that BSA's scrubber relies on scrubber liquid flow and pressure drop, rather than chemical pH adjustment, for pH control. If so, then a minimum of 80-minute per run is required for the minimum of 4 hours of information needed to establish operating parameter limits for pressure drop and scrubber liquid flow.

Regarding reporting of test reports to CEDRI/ERT, the inspectors noted that although NYSDEC may require reports be submitted through a state system, BSA is required by Subpart MMMM (section 60.5235) to submit test reports to EPA through its "Compliance and Emissions Data Reporting Interface" ("CEDRI"), specifically the electronic reporting tool ("ERT") accessed through EPA's central data exchange ("CDX"). They noted that BSA likely currently submits discharge monitoring reports ("DMRs") under the Clean Water Act through CDX which should facilitate the process. The inspectors reiterated that BSA was required to submit the test reports from prior to 2023, as well as in the future, through the CEDRI/ERT system to ensure public transparency.

The inspectors asked if BSA conducted performance evaluations of its parameter monitoring devices around the time of the emissions testing. Mr. Emmerson explained that the performance testing of the monitors is currently done at varying times of the year. They explained the importance of timing the evaluations close to the emissions testing to ensure that the instruments provide accurate information for setting operating parameter limits during testing. They noted that several of BSA's deviation reports showed the pH monitors were experiencing errors due to drift of the monitoring instruments which could contribute to the pH deviation issues the facility was experiencing.

The inspectors noted that because BSA had not yet petitioned and received approval from EPA for parameter monitoring used to control Hg, d/f, and NOx, the initial and annual tests did not fully meet the testing related requirements of Subpart MMMM (section 60.5190). They explained that without a fully approved petition and SSMP for all nine pollutants regulated under Subpart MMMM, the emissions testing and parameter setting would be incomplete. Mr. Emmerson stated that the next annual testing is scheduled for May or June of 2023 and asked if they could get an extension on the deadline. The inspectors said that they would need to consider the situation before deciding whether or not such an extension could be provided.

The inspectors noted it appeared that INC2 failed to meet the emission limit for lead ("Pb") during the 2021 emissions test. They noted that in situations where the same pollution control device is used to control several pollutants, such as a scrubber controlling metals and PM, as well as acid gases, the test cannot be used to set operating parameters limits for any of those pollutants and a retest for all of the pollutants controlled by that device would be necessary.

Training

The inspectors asked Mr. Emmerson to describe the incinerator operator training program at the facility. He explained that while BSA had an approved initial training program for certifying its operators, it did not have permission from NYSDEC to conduct refresher training, although such training was conducted. In 2019, BSA failed to provide refresher training but in 2020 had one certified operator and as of 2022, they now have two. BSA is also working with NYSDEC to get approval to conduct its annual refresher training.

B. Facility Walk Through

At 4:15 pm, facility representatives led the inspectors on a walk through the facility. The walk through started at the solids processing and handling area and proceeded to incineration to ash handling, including a stop at the control room to observe the operating parameters of INC3 which was now running. They also observed the boilers and noted that the facility had several older waste heat boilers that were currently not used. The inspectors noted a layer of fine red ash on many surfaces throughout the building. See Attachment 3, photos 9260 - 9319.

C. Closing Meeting

At approximately 5:45 pm, the inspectors and Mr. Emmerson went back to the conference room for a closing conference. The inspectors explained that they would recap areas of concern as noted during the inspection and that they would be writing an inspection report within the next 60 days that they would share with the facility.

Areas of Concern

The inspectors noted the following areas of concern that were discussed during the inspection, including but not limited to:

- The lack of an approved FCP describing how each of the nine pollutants regulated by Subpart MMMM is controlled at the facility.
- The lack of an approved petition regarding control of Hg, d/f, and NOx and associated compliance monitoring.
- The lack of an approvable SSMP due to the lack of approved control plan and petition.
- The lack of operating parameter limits and monitoring information for scrubber flows and pressure drops for each scrubber stage (e.g., venturi, tray).
- The significant rates of reported deviation of pH parameter limits for both scrubbers.
- Insufficient total testing time for SO2 and HCl to establish operating parameter limits for the scrubbers controlling acid gases.

- The number of reported bypasses and need to develop standard operating procedures to investigate and correct causes.
- The lack of explanation in the ash handling fugitive emissions plan of how monitoring is performed at the ash loading bays.
- The failure of INC2 to meet the emission limit for Pb in 2021.
- The lack of clarity as to whether the SSIs operated at or above 85% of the maximum capacity during initial compliance and annual stack testing.
- The need for a comprehensive test for all pollutants after the petition and revised SSMP have been approved.
- The lack of test reports submitted to CEDRI/ERT from 2016 to 2022.

Mr. Emmerson emphasized that BSA wanted to address any concerns and asked if the inspectors and BSA could have a conference call to further discuss areas of concern sometime in the next few weeks. EPA told him that they would be available to answer questions after the inspection report has been shared with BSA.

The inspectors thanked Mr. Emmerson and the other facility representatives for their time and assistance in understanding the operation of the facility.

The inspectors departed the facility at 6:30 pm.

Attachment 1: Pre-inspection records review

Category	File name	Date
Permit:		
	Air Title V Facility **Permit** ID: 9-1402-00154/00007	9/9/2016
Modeling:		
	Air Dispersion **Modeling Report** – Rev 01 Bird Island Wastewater Treatment Plant - Sewage Sludge Incinerators Buffalo Sewer Authority	February 21, 2022
Testing:		
	Air Emissions **Test Protocol** Buffalo Sewer Authority Multiple Hearth **Incinerator Nos. 2 & 3** Buffalo, New York	March 2022
	Air Emissions **Test Repor**t Buffalo Sewer Authority Multiple Hearth **Incinerators 2 and 3** Buffalo, New York	September 2022
	Air Emissions **Test Protocol** Buffalo Sewer Authority Multiple Hearth **Incinerator Nos. 2 & 3** Buffalo, New York Revision No. 1	May 2021
	AIR EMISSIONS **TEST REPORT** Buffalo Sewer Authority, Multiple Hearth **Incinerators 2 and 3**, Buffalo, New York	July 2021
	AIR EMISSIONS **TEST REPOR**T of Buffalo Sewer Authority Auxiliary **Boiler Nos.1-3** Buffalo, New York	July 2021
	Appendices A and B of Emissions **Test Report** for 40 CFR Part 60, Subpart MMMM, at Buffalo Sewer Authority Unit 2	9/12/2017
	Appendix C of Emissions **Test Report** for 40 CFR Part 60, Subpart MMMM, at Buffalo Sewer Authority Unit 3	5/23/2022
	Appendices E, F & G of Emissions **Test Report** for 40 CFR Part 60, Subpart MMMM, at Buffalo Sewer Authority	6/2/2022
Biosolids Sampling:		
	Biosolids Annual Report BUFFALO SEWER AUTHORITY	2021
	Biosolids Furnace Process and Operation Overview Bird Island Wastewater Treatment Plant Operator Certification Program by Incinerator Rx Corporation	2017
	Laboratory Data for Analyte: **Solids**, Total %	April 2022
	BUFFALO SEWER AUTHORITY **DRY SOLIDS** TO INCINERATOR	April 2022
	BUFFALO SEWER AUTHORITY **DRY SOLIDS** TO INCINERATOR	August 2020
	Buffalo Sewer Authority Laboratory **503 Regs Analytical Report** West and East Belt Combined Jan - Dec 2020	Undated but refers to 2020
	Buffalo Sewer Authority Laboratory **503 Regs Analytical Report** West and East Belt Combined Jan - Jun 2021	Undated but refers to 2021
	Example of annual **CWA Section 503 Metal** Calculations sheet	undated but refers to 2021
	2020 Sewage **Sludge Concentration Limits**	undated
	Incinerator #2 operating parameters and lead as percentage of standard	12/23/2021

Annual and Semi-Annual Reports:		
	Email Re: BSA 2021 **Annual & Semiannual reports** From: Alex Emmerson Sun 1/30/2022 12:49 PM To: marcia.ladiana@dec.ny.gov	1/30/2022
	Cover letter from Buffalo Sewer Authority to Marcia Ladiana, NY DEC Region 9, Division of Air Resources, Re: Air Title V Compliance Reports	Jan 29, 2021
	Semi- Annual Report for January 1, 2019 through June 30th, 2019	11/6/2020?
	Semi- Annual Report for July 1, 2019 through December 31st, 2019	11/6/2020
	Semi- Annual Report for January 1, 2019 through June 30th, 2019	11/6/2020
	Semi- Annual Report for July 1, 2019 through December 31st, 2019	November 6th, 2020
	Semi- Annual Report for January 1, 2019 through June 30th, 2019	11/6/2020?
	Semi- Annual Report for July 1, 2019 through December 31st, 2019	November 6th, 2020
	Annual Report for January 1, 2019 through December 31st, 2019	11/6/2020
	Semi- Annual Report for January 1, 2020 through June 30th, 2020	11/6/2020
	Semi- Annual Report for July 1, 2020 through December 31st, 2020	1/30/2021
	Semi- Annual Report for January 1, 2020 through June 30th, 2020	11/6/2020
	Semi- Annual Report for July 1, 2020 through December 31st, 2020	1/30/2021
	Semi- Annual Report for January 1, 2020 through June 30th, 2020	11/6/2020
	Semi- Annual Report for July 1, 2020 through December 31st, 2020	1/30/2021
	Annual Report for January 1, 2020 through December 31st, 2020	1/30/2021
	Semi- Annual Report for January 1, 2021 through June 30th, 2021	undated
	Semi- Annual Report for July 1, 2021 through December 31st, 2021	January 30th, 2022
	Semi- Annual Report for January 1, 2021 through June 30th, 2021	July 29th, 2021
	Semi- Annual Report for July 1, 2021, through December 31st, 2021	January 30th, 2022
	Semi- Annual Report for January 1st, 2021, through June 30th, 2021	July 6th, 2021
	Semi- Annual Report for July 1, 2021 through December 31st, 2021	January 6th, 2022
	Annual Report for January 1, 2021 through December 31st, 2021	1/30/2022
	Semi- Annual Report for January 1, 2022 through June 30th, 2022	?
	Semi- Annual Report for January 1, 2022, through June 30th, 2022	July 29th, 2022
	Semi- Annual Report for January 1, 2022, through June 30th, 2022	?
Training Documents:		
	Biosolids furnace operator certificate	Undated but expiration 12/1/2021
	Buffalo Sewer Authority Bird Island Wastewater Treatment Plant Biosolids Furnace Operator MACT Certification Test Participants Test Session 2	2/29/2015
	BIOSOLIDS FURNACE OPERATOR CERTIFICATION TECHNICAL REFERENCE DOCUMENT, Equipment and Operational Review, Buffalo Sewer Authority, Bird Island Wastewater Treatment Plant; Prepared By Incinerator Rx Corporation	August 2015, Revised April 2017
	Biosolids furnace operator test	undated

	Title V Operator Training Attendance Sheet	May 10 - 14, 2021
	Title V Operator Training Attendance sign in sheet	8/23/2018
	Attendee list for Operator Re-Certification Session	9/27/2021
	Incinerator Operator re-certification and training program report	10/4/2021
Other Reports:		
	INCINERATOR RUN TIME (HOURS) 2022 BUFFALO SEWER AUTHORITY WASTEWATER TREATMENT PLANT	2022
	Oxygen Deviations report	undated
Inspection Reports:		
	NYSDEC Inspection Detail/Report	6/17/2014
	NYSDEC Inspection Detail/Report	5/11/2016
	Stack test observation	9/12/2017
	NYSDEC Inspection Detail/Report	9/20/2018
	NYSDEC Inspection Detail/Report	9/30/2020
	NYSDEC Inspection Detail/Report	5/11/2021
	NYSDEC Inspection Detail/Report	9/21/2022
	Letter from NYSDEC to Ms. Roberta Gaiek, BSA, re: problems determined during the FCE	5-Nov-18
Plans:		
	Site Specific Monitoring Plan	Dec-17
	Evaluation and Recommendation of Incinerator Ash Handling System Upgrades	30-Aug-13
	Sludge Incineration – Ash Conveyance - Standard Operating Procedure	24-May-17

Attachment 2: Digital photo log

Bird Island Water Treatment Facility Sewage Sludge Incinerator Inspection January 10, 2023[1]	
Photo Number	Description:
1	SCADA screen water treatment overview
2	SCADA screen solids process overview
3	SCADA screen Incinerator 3
4	SCADA screen centrifuge 2 overview
5	SCADA screen air pollution control system – Incinerator 3
6	SCADA screen ash load out system
7	SCADA screen incinerator regulatory values
8	SCADA screen sludge feed rate
9259	Bird Island entry way sign
9260	Delivery bay for outside party sludge
9261	Belt press - out of service
9262	Belt press- out of service
9263	Centrifuge
9264	Centrifuge
9265	Screw conveyor
9266	Belt conveyor
9267	Belt conveyor
9268	Conveyor control
9269	Piping for outside party sludge (brown) and scale (blue)
9270	Top of INC2
9271	Bypass hatch
9272	Bypass actuator
9273	Top of INC1 - out of service
9274	Stack 1
9275	Outside source sludge piping (brown)
9276	Laboratory
9277	Control room workstation monitors
9278	SCADA screen showing system
9279	SCADA screen with feed rate
9280	Sludge digester units
9281	Sludge digester units and gas storage tank
9282	Control room panel - out of service
9283	Control room panel - out of service
9284	New control room SCADA system workstation
9285	SCADA screen of Incinerator 3 operation
9286	SCADA screen of centrifuge 2 overview
9287	Duct work and storage tank
9288	Boiler

[1] Photos taken with Nikon Cool Pix #32013288 and iPhone.

9290	Digester and natural gas lines to boiler
9291	1975 nameplate on boiler
9292	Heat recovery boiler - not in service
9293	INC3 induction fan
9294	INC3 access hatch
9295	Burner control cabinet
9296	Side of incinerator
9297	Open hatch of INC1
9299	INC3 view window
9300	Front of INC3
9301	INC3 hearth 5 operator window
9302	INC3 hearth 6 port
9303	INC3 hearth 8
9304	INC3 hearth 12
9305	EnviroCare control panel
9306	Screen shot EnviroCare control panel of scrubber diagram
9307	Screen shot of EnviroCare scrubber parameters INC3
9308	Combustion air induction fan in basement
9309	Center shaft INC3
9310	Center shaft cooling fan INC3
9311	Scrubber discharge tank
9312	Clinker grinder
9313	Scrubber
9314	Sludge cake hopper
9315	Fats, oils, and greases receiving bay
9316	Ash exhaust pumps
9317	Ash chute
9318	Bay door and ash chute
9319	Ash pug mill (north)

Attachment 3: Digital photos

Photo 1: **SCADA screen water treatment overview**

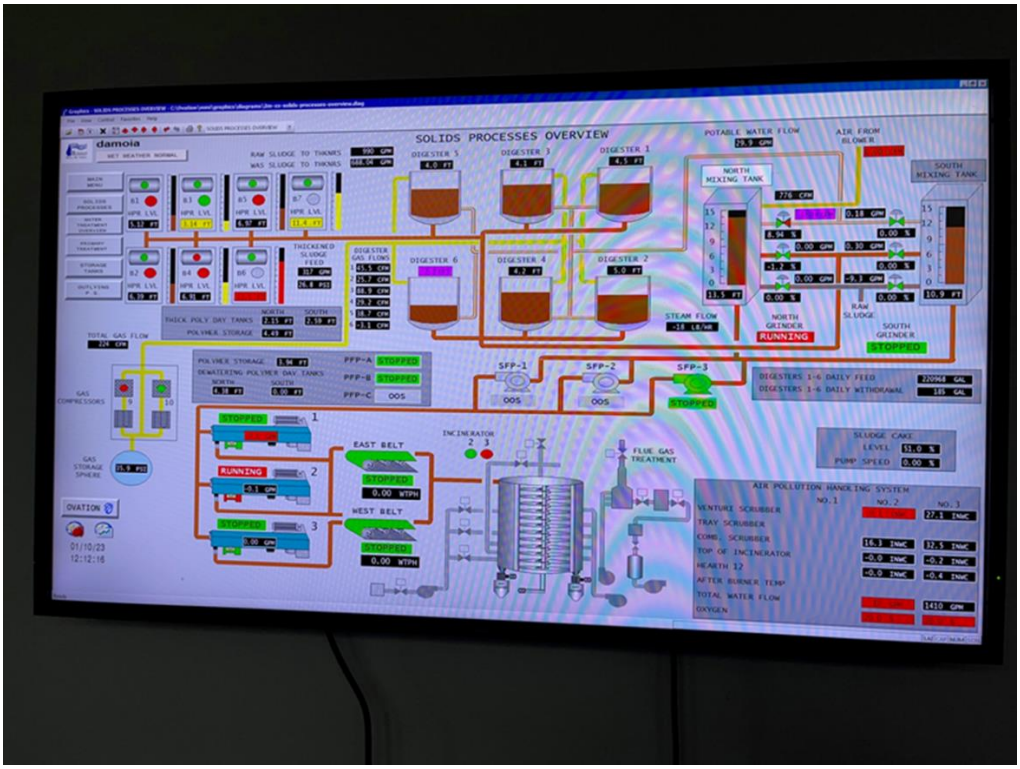

Photo 2: **SCADA screen solids process overview**

Photo 3: **SCADA screen Incinerator 3**

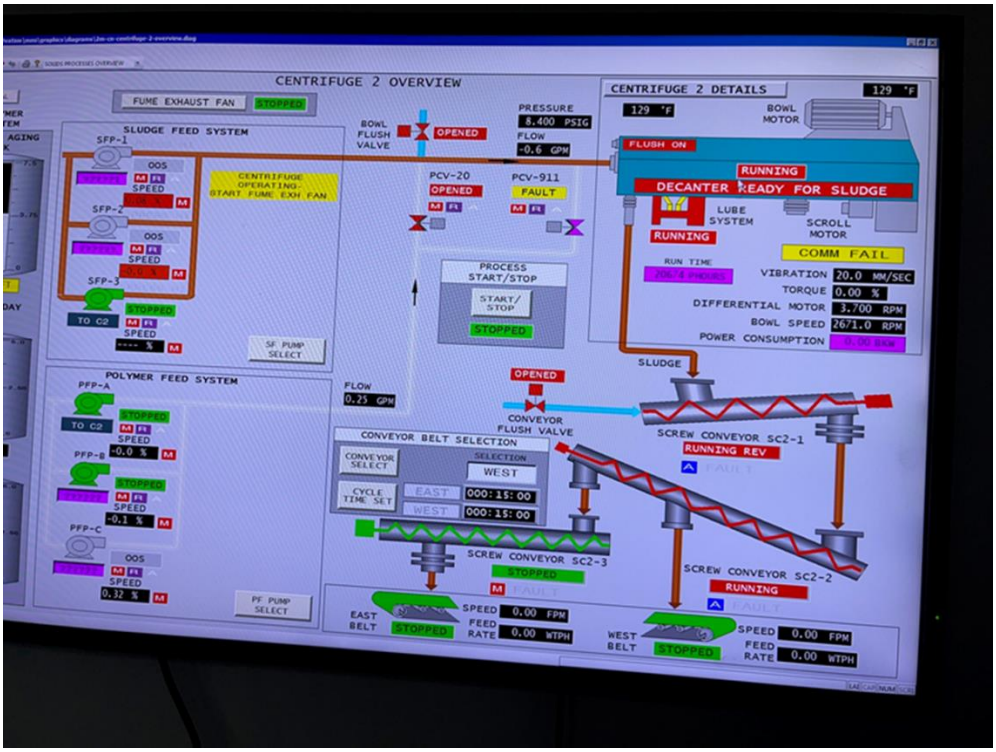

Photo 4: **SCADA screen centrifuge 2 overview**

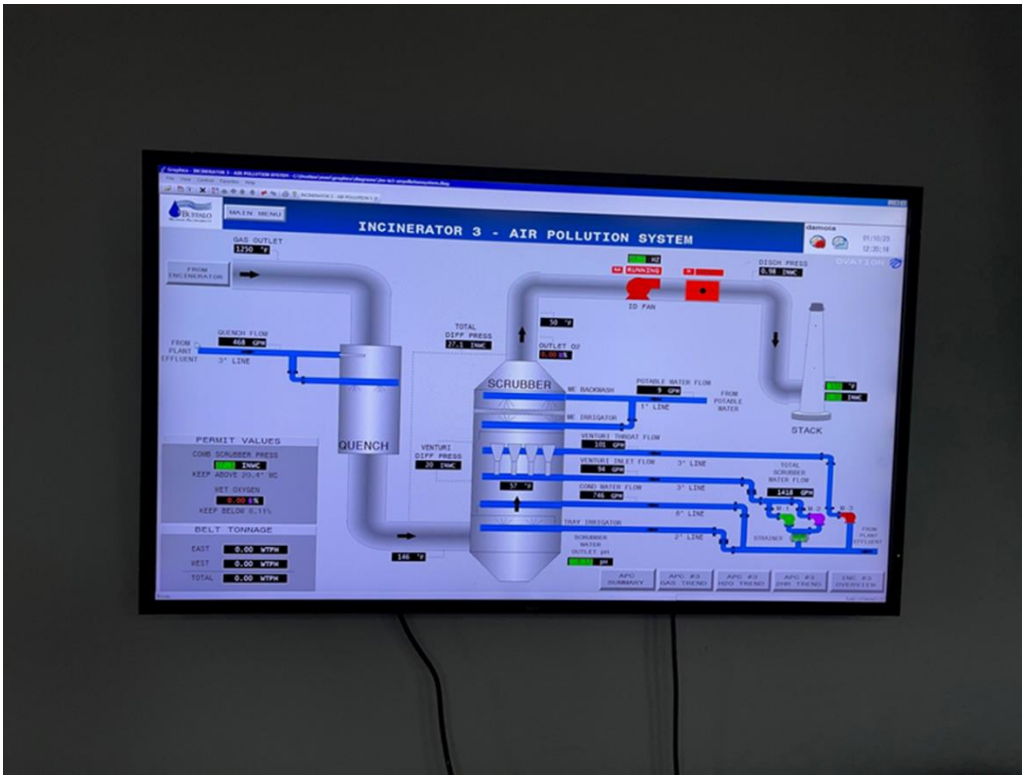

Photo 5: **SCADA screen air pollution control system – Incinerator 3**

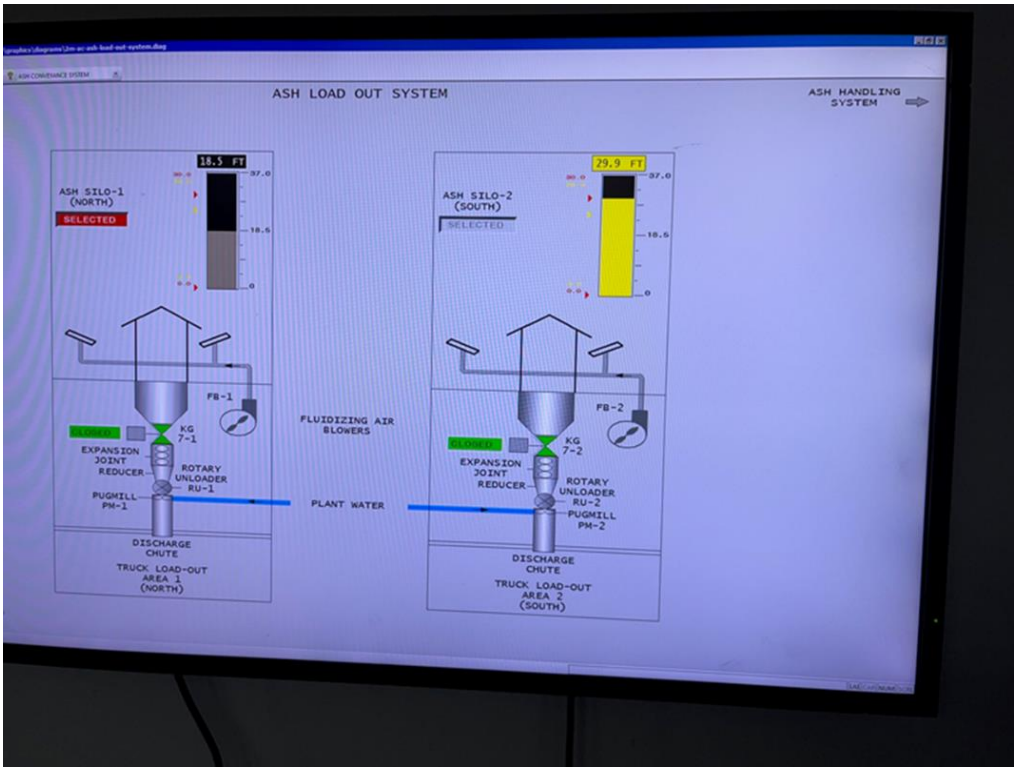

Photo 6: **SCADA screen of ash load out system**

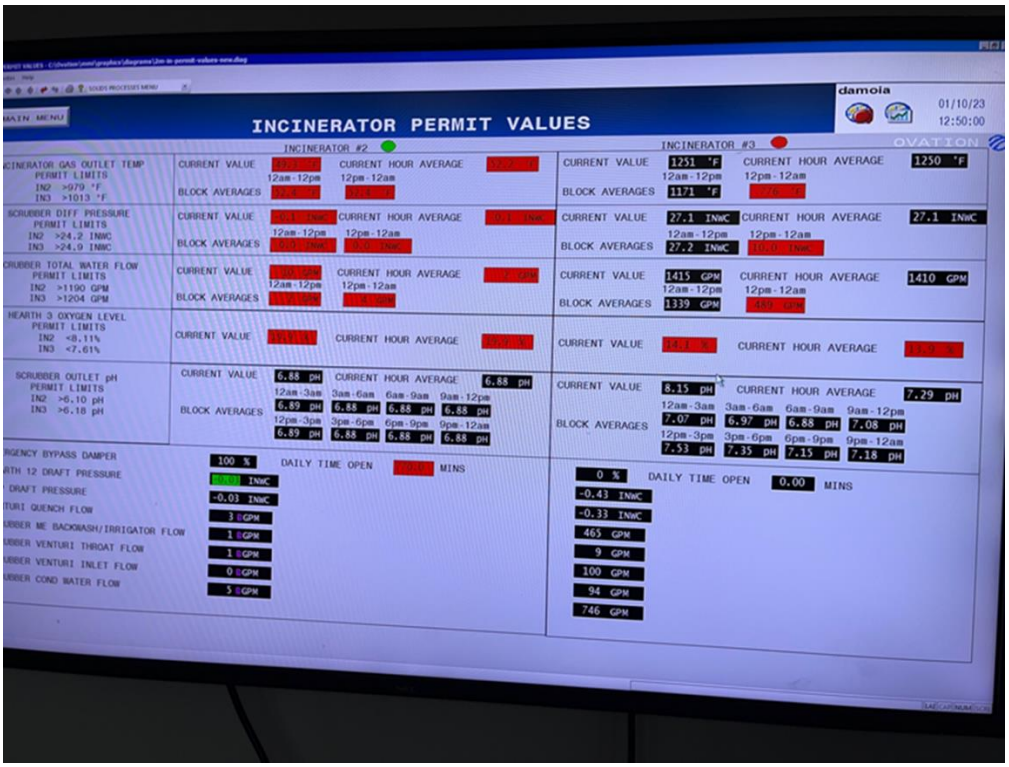

Photo 7: **SCADA screen incinerator regulatory values**

Photo 8: **SCADA screen sludge feed rate**

Photo 9259: Bird Island entry way sign

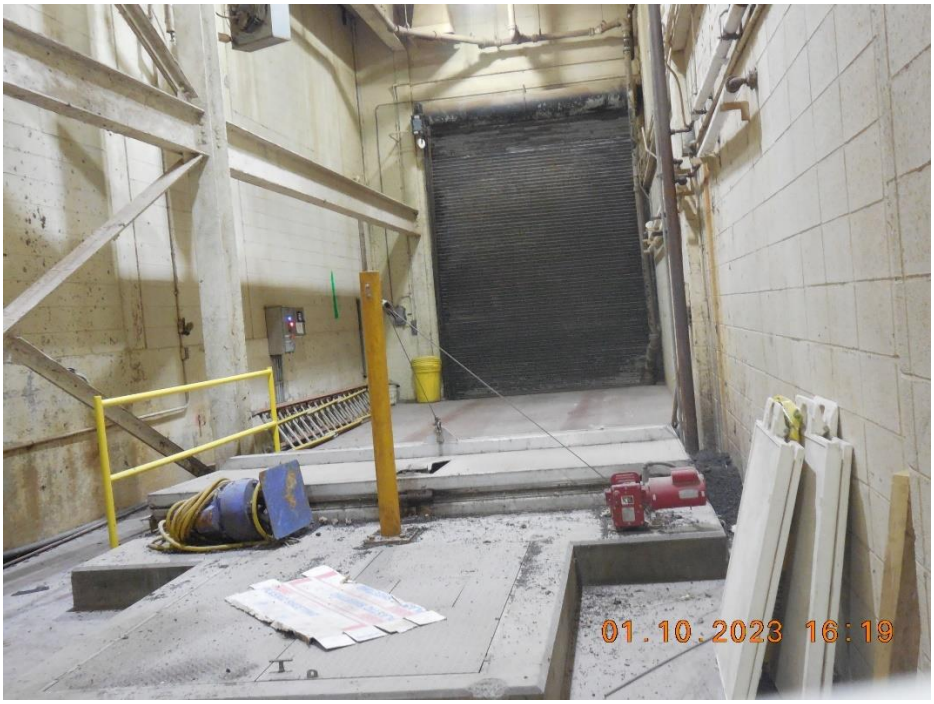

Photo 9260: Delivery bay for outside party sludge

Photo 9261: Belt press - out of service

Photo 9262: Belt press- out of service

Photo 9263: Centrifuge

Photo 9264: Centrifuge

Photo 9265: Screw conveyor

Photo 9266: Belt conveyor

Photo 9267: Belt conveyor

Photo 9268: Conveyor control

Photo 9269: Piping for outside party sludge (brown) and scale (blue)

Photo 9270: Top of INC2

Photo 9271: Bypass hatch

Photo 9272: Bypass actuator

Photo 9273: Top of INC1 - out of service

Photo 9274: Stack 1

Photo 9275: Outside source sludge piping (brown)

Photo 9276: Laboratory

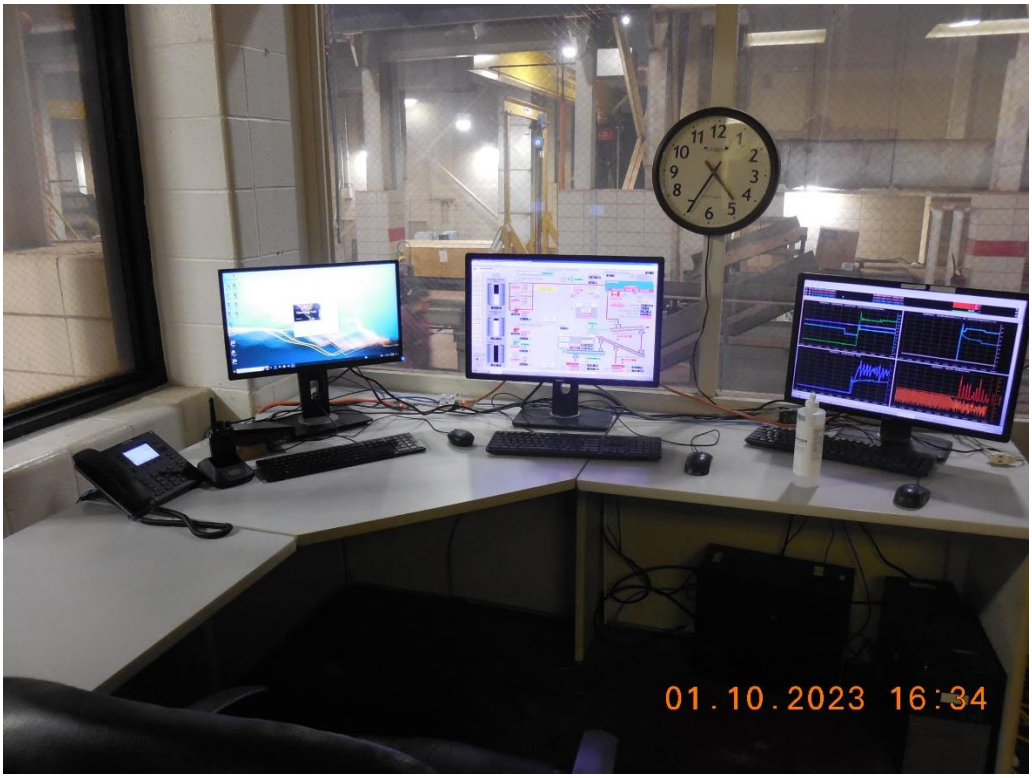

Photo 9277: Control room workstation monitors

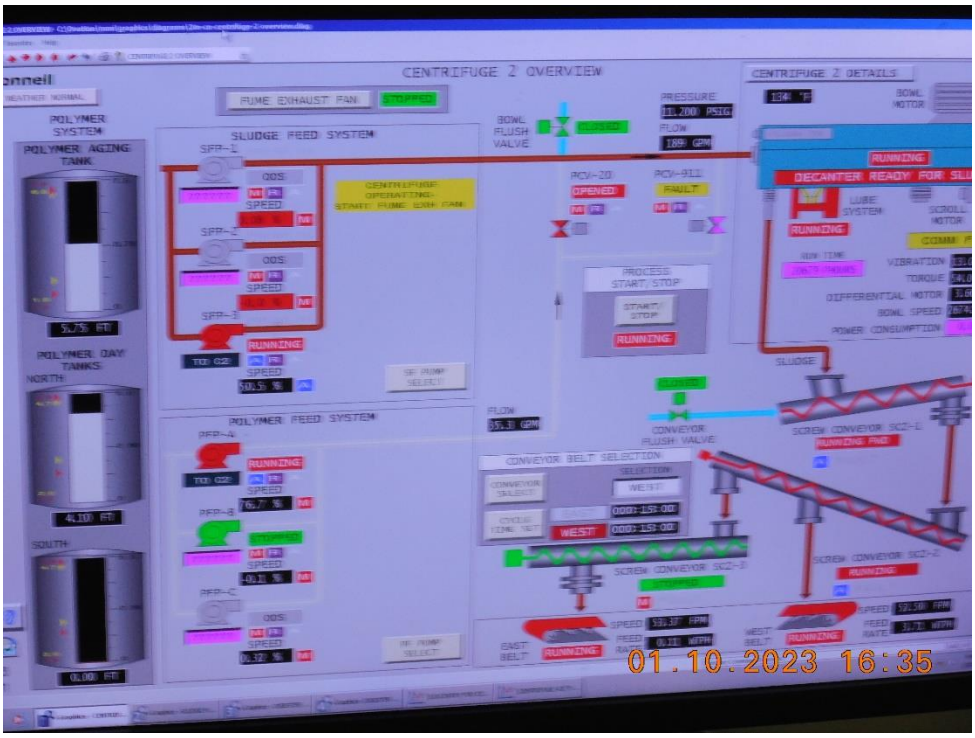

Photo 9278: SCADA screen showing system

Photo 9279: SCADA screen with feed rate

Photo 9280: Sludge digester units

Photo 9281: Sludge digester units and gas storage tank

Photo 9282: Control room panel - out of service

Photo 9283: Control room panel - out of service

Photo 9284: New control room SCADA system workstation

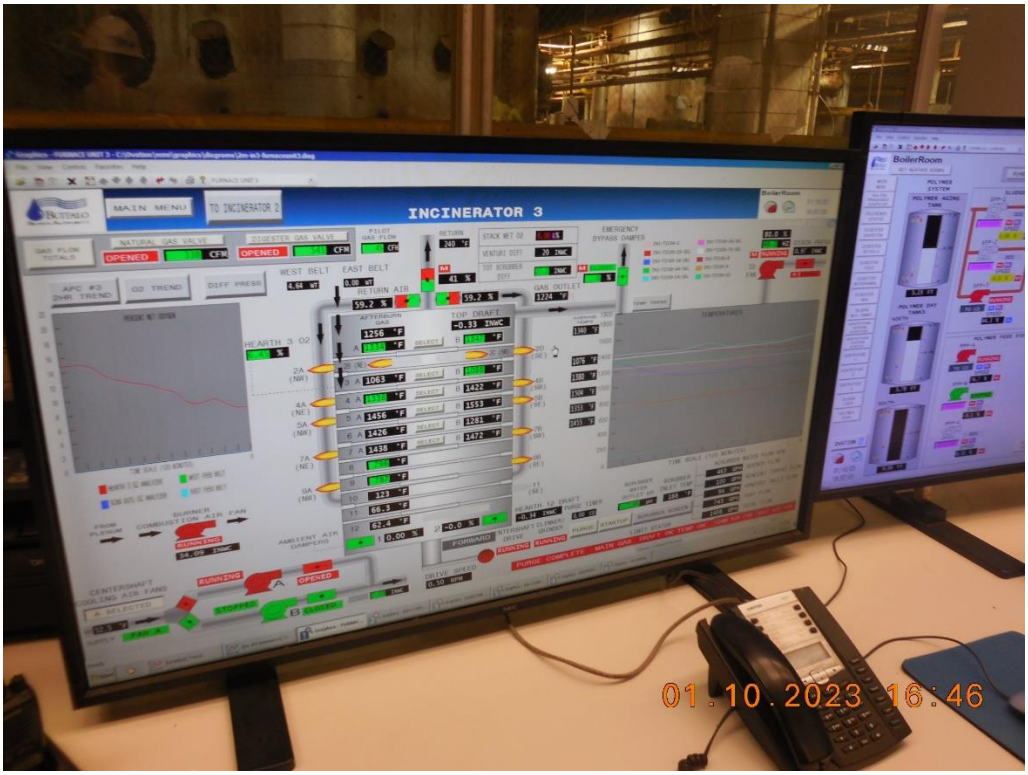

Photo 9285: SCADA screen of Incinerator 3 operation

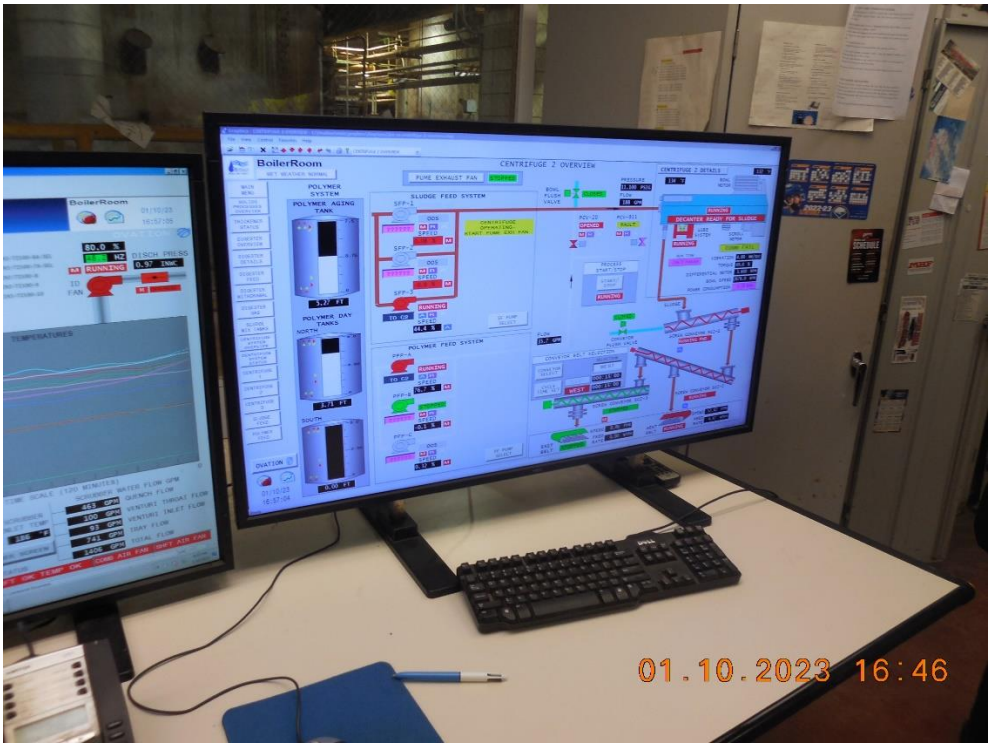

Photo 9286: SCADA screen of centrifuge 2 overview

Photo 9287: Duct work and storage tank

Photo 9288: Boiler

Photo 9290: Digester and natural gas lines to boiler

Photo 9291: 1975 nameplate on boiler

Photo 9292: Heat recovery boiler - not in service

Photo 9293: INC3 induction fan

Photo 9294: INC3 access hatch

Photo 9295: Burner control cabinet

Photo 9296: Side of incinerator

Photo 9297: Open hatch of INC1

Photo 9299: INC3 hearth 5 operator window

Photo 9300: Front of INC3

Photo 9301: INC3 hearth 5 window

Photo 9302: INC3 hearth 6 port

Photo 9303: INC3 hearth 8

Photo 9304: INC3 hearth 12

Photo 9305: EnviroCare control panel

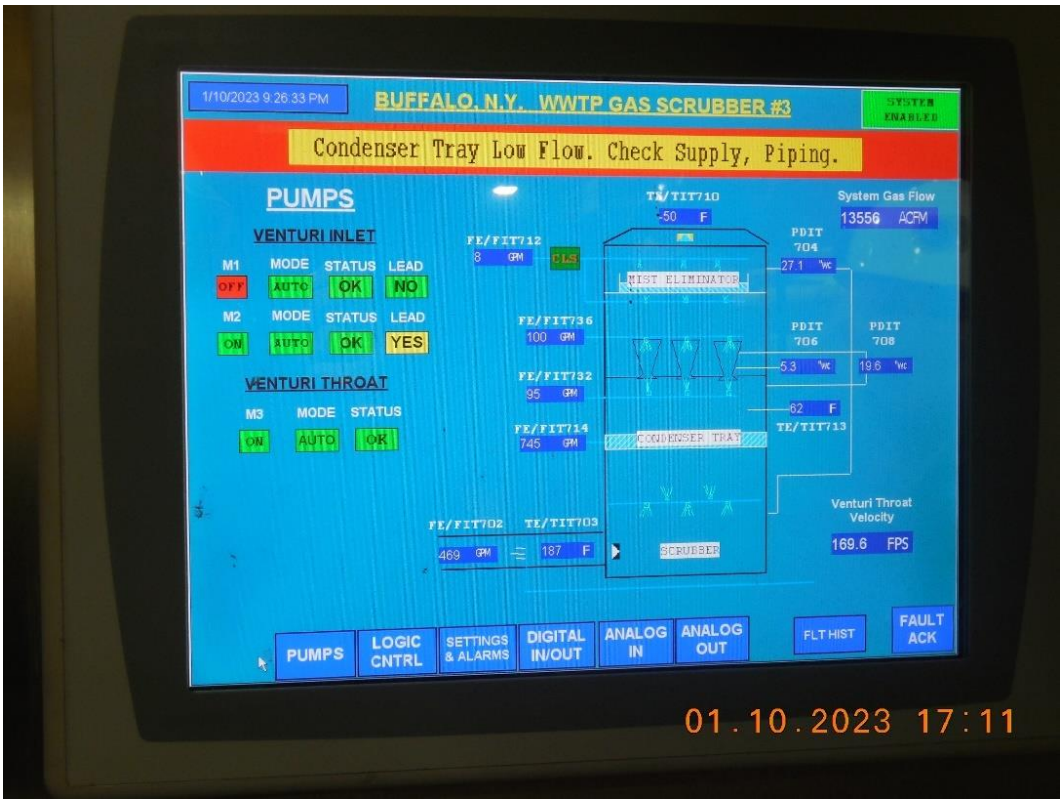

Photo 9306: Screen shot EnviroCare control panel of scrubber diagram

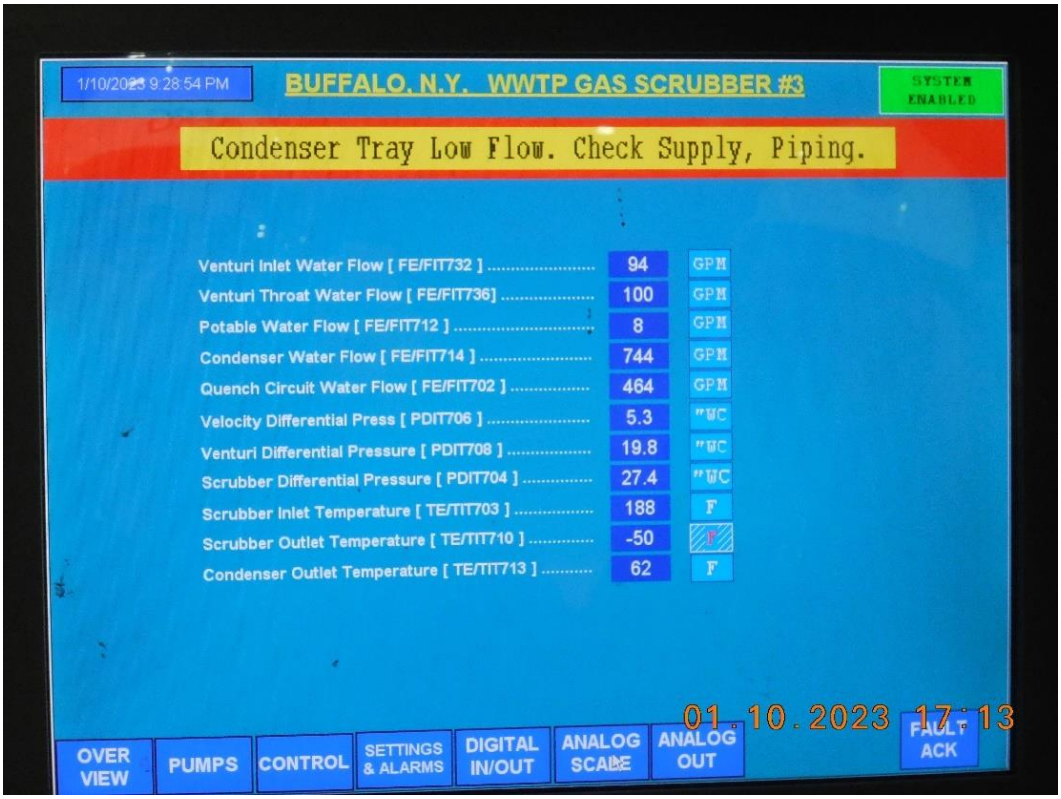

Photo 9307: Screen shot of EnviroCare scrubber parameters INC3

Photo 9308: Combustion air induction fan in basement

Photo 9309: Center shaft INC3

Photo 9310: Center shaft cooling fan INC3

Photo 9311: Scrubber discharge tank

Photo 9312: Clinker grinder

Photo 9313: Scrubber

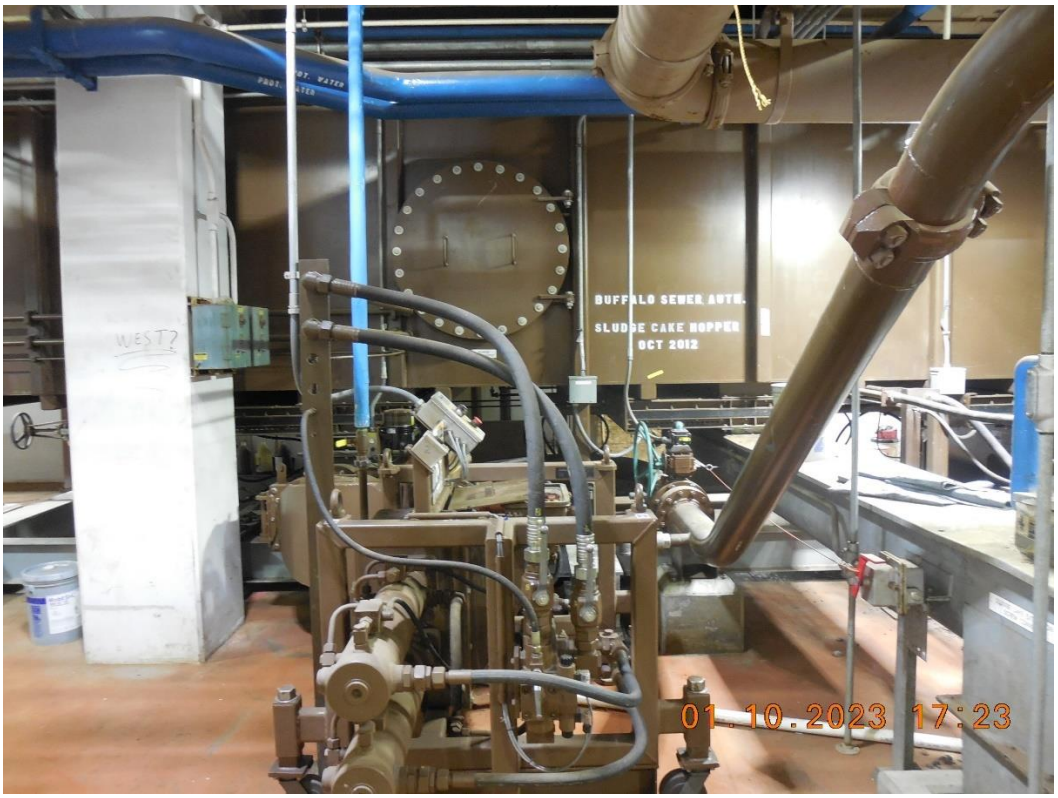

Photo 9314: Sludge cake hopper

Photo 9315: Fats, oils, and greases receiving bay

Photo 9316: Ash exhaust pumps

Photo 9317: Ash chute

Photo 9318: Bay door and ash chute

Photo 9319: Ash pug mill (north)

Assisting Inspector's Name: Steve Rapp, ERG

X Steve Rapp Digitally signed by Steve Rapp Date: 2023.02.20 13:50:20 -05'00'

Assisting Inspector

EPA Lead Inspector's Name: Phillip Ritz

X PHILLIP RITZ Digitally signed by PHILLIP RITZ Date: 2023.03.02 11:27:26 -05'00'

~~Lead~~ Inspector

EPA Assisting Inspector's Name: Joseph Cardile

X JOSEPH CARDILE Digitally signed by JOSEPH CARDILE Date: 2023.03.02 11:15:58 -05'00'

Assisting Inspector

Supervisor's Name: Harish Patel

X HARISH PATEL

Digitally signed by HARISH PATEL
Date: 2023.03.02 13:13:26 -05'00'

Supervisor